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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,238	12/12/2003	Timothy Dorr	130-020	1881
34845	7590	08/10/2005	EXAMINER	
STEUBING AND MCGUINESS & MANARAS LLP 125 NAGOG PARK ACTON, MA 01720			CERULLO, JEREMY S	
			ART UNIT	PAPER NUMBER
			2112	

DATE MAILED: 08/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

10/735,238

Applicant(s)

DORR ET AL.

Examiner

Jeremy S. Cerullo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-9 and 11-15 is/are rejected.
- 7) ☒ Claim(s) 2-3 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-15 are pending in the following action.

Claim Objections

2. Claims 1, 3, 5, and 9 are objected to because of the following informalities:
3. As for Claim 1, in the sixth line of the claim, "the set of control bits" should apparently be "the sets of control bits".
4. As for Claim 3, the claim refers to a mux, and there is no antecedent basis for a mux in the claims.
5. As for Claim 5, in the fifth line of the claim, "the at least two" should apparently be "the at least two".
6. As for Claim 9, in the first line of the claim, "according to step 8" should apparently be "according to claim 8", and in the third line of the claim, "of the device" should apparently be "of the devices".
7. Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent Application Publication No. 2002/0057711 ("Nguyen" et al.).

10. As for Claim 8, Nguyen discloses a method of controlling access to a shared resource (Figure 1, XPORT) by at least two devices (Figures 1-2, Items 11 and 21). Nguyen discloses a set of control bits for each of devices including a request bit and a grant bit. (Figure 2, Items 212 and 222; Page 3, Paragraphs [0025]-[0026]) Nguyen also discloses arbitration logic (Figure 2, Item 232), coupled to the sets of control bits, operating responsive to the request bits for each of the two devices to set the grant bit of one of the devices according to an arbitration protocol (Page 3, Paragraph [0026]).

11. As for Claim 9, Nguyen discloses that granting access to a device is achieved by setting the grant bit associated with at least one of the devices in response to the request bit associated with the device. (Page 3, Paragraph [0026])

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 1, 4, and 11-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0057711 ("Nguyen" et al.).

15. As for Claim 1, Nguyen teaches an arbiter (Figures 1-2, Item 136) for controlling access to a shared resource (Figure 1, XPORT) by at least two devices (Figures 1-2, Items 11 and 21). Nguyen also teaches a set of control bits for each of devices including a request bit and a grant bit. (Figure 2, Items 212 and 222; Page 3, Paragraphs [0025]-[0026]) Nguyen also teaches arbitration logic (Figure 2, Item 232), coupled to the sets of control bits, operating responsive to the request bits for each of the two devices to set the grant bit of one of the devices according to an arbitration protocol (Page 3, Paragraph [0026]). Nguyen does not teach that the control bits are inside the arbiter. However it would have been obvious to one of ordinary skill in the art at the time of the invention to have included the registers storing the bits inside the arbiter to reduce total components and interconnects, simplifying the circuit.

16. As for Claim 4, while Nguyen does not teach the performance of the arbiter using the terms "IDLE state" and "GRANT state", Nguyen does teach differences in performance based on the current condition of the control bits (i.e. different states). As taught on Page 3, when a grant bit is asserted, the associated device is permitted

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access to the XPORT (a GRANT state) and when the device de-asserts its request bit, the arbiter de-asserts the grant bit, denying access (a IDLE state).

17. As for Claim 11, while Nguyen does not teach the performance of the arbiter using the terms "IDLE state" and "GRANT state", Nguyen does teach differences in performance based on the current condition of the control bits (i.e. different states). As taught on Page 3, when a grant bit is asserted, the associated device is permitted access to the XPORT (a GRANT state) and when the device de-asserts its request bit, the arbiter de-asserts the grant bit, denying access (a IDLE state).

18. As for Claim 12, Nguyen teaches that the requesting access includes setting a request bit. (Page 3, Paragraph [0026])

19. As for Claim 13, Nguyen teaches that the device de-asserts the request bit when it no longer requires access. (Page 3, Paragraph [0026])

20. As for Claim 14, Nguyen teaches that the granting of access includes setting a grant bit associated with the device. (Page 3, Paragraph [0026])

21. As for Claim 15, Nguyen teaches that a second device may request access to the shared device, and that the second device is granted access (i.e. second device grant state) after the first device releases its control (i.e. first device idle state). (Page 3, Paragraphs [0026]-[0027])

22. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen as applied to Claim 1 above, and further in view of U.S. Patent No. 6,567,983 ("Shiimori"). Nguyen teaches all of the limitations inherited from Claim 1. Nguyen also

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teaches the use of a mux (Figure 1, Item 138), wherein each of the two devices provides input signals to the mux and the arbitration logic controls the mux to select which device has access to the resource. (Page 2, Paragraph [0017]) Nguyen teaches the shared resource is an external I/O port (XPORT), but he is silent as to what type of device is connected to the XPORT. However, Shiimori teaches a disk drive (Figure 2, Item 13) connected to a computer system via an external I/O port/controller (Figure 2, Item 12). It would have been obvious to one of ordinary skill in the art at the time of the invention to have consulted available art to determine what type of device could be connected to a computer via an external I/O port, given the silence on the matter by Nguyen, and would have found Shiimori and used a disk drive.

23. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen and Shiimori as applied to Claim 5 above, and further in view of U.S. Patent No. 5,935,205 ("Murayama" et al.). Nguyen and Shiimori teach all of the limitations inherited from Claims 1 and 5. However, they do not teach that there are at least two controllers associated with the at least two devices. However, Murayama teaches a system in which for multiple devices accessing a shared resource, a separated controller is required. (Column 1, Line 64 – Column 2, Line 9) It would have been obvious to one of ordinary skill in the art at the time of the invention to have used a separate controller for each device so that request information could be sent to the controller while the device is waiting for the arbiter to grant access, reducing wasted cycles.

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24. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen, Shiimori, and Murayama as applied to Claim 6 above, and further in view of U.S. Patent No. 6,575,783 ("Wu"). Nguyen, Shiimori, and Murayama teach all of the limitations inherited from Claims 1, 5, and 6. However, they do not teach the use of Serial ATA; they are silent as to what type of disk drive is used. One of ordinary skill in the art at the time of the invention would have therefore consulted art of the time and found Wu, who teaches the use and advantages of Serial ATA. In Column 1, Lines 21-29, Wu teaches that Serial ATA technology is superior to other interfaces. One of ordinary skill in the art would have then been motivated to use Serial ATA technology in the system of Nguyen, Shiimori, and Murayama.

Allowable Subject Matter

25. Claims 2-3 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

26. The following is a statement of reasons for the indication of allowable subject matter: While art can be found that teaches the use of Grant and Request Bits stored in a register for arbitration purposes (Nguyen), art has not been found that teaches the additional bits claimed in Claims 2-3 and 10, specifically the mux reset bits and the override bits. Therefore, Claims 2-3 and 10 contain allowable subject matter.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy S. Cerullo whose telephone number is (571) 272-3634. The examiner can normally be reached on Monday - Thursday, 7:00-4:30; Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rehana Perveen can be reached on (571) 272-3676. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


JSC


PAUL R. MYERS
PRIMARY EXAMINER